

# THE LEADING EDGE

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## A PUBLICATION DEDICATED TO MAXIMIZING YIELD POTENTIAL

### **The Rotary Hoe Wears Many Hats for Today's Producers**

The rotary hoe is a traditional tool that has adapted well to today's conservation tillage and time sensitive operations. This multipurpose hoe has become a must-have for many producers because it handles a range of tasks well.



Time proven high speed cultivation tool

Producers save time and money because one tool counteracts environmental effects that might otherwise lead to replanting and negates the need to purchase additional, expensive equipment.

The rotary hoe boasts a relatively low operating cost per acre, according to the Iowa State University Agriculture Extension. Rotary hoeing can be done with a relatively low horsepower tractor so fuel costs are low.

### **Keep Ground Cover Intact While Making Pre-Plant Preparations**

Many traditional tillage methods disturb crop residue that is critical to soil conservation and invite erosion. No-till producers have the challenge of balancing the significant benefit residue provides with the trials it presents.

Although typically utilized after planting, using a rotary hoe before planting has benefits—it has proven itself to be an excellent solution to dry and warm up damp spring soils that would otherwise prevent no-till farmers from entering the field.

Modern rotary hoe tines are designed for shallow action and gently flip soil without significantly disturbing residue. The lifting and redistributing is all that is needed to allow warm spring air to dry residue, warm soil, and advance the planting date.

Different from one-function tools like rotary harrows, rotary hoes do not flatten residue, which would make it harder for planter

residue managers to operate effectively. Rotary hoes' shallow penetration also means moisture in the seed zone is preserved.

### **Manage Soil After Rains with the Rotary Hoe**

Heavy rains can lead to soil crusting, especially in soils with high silt content. When raindrops impact soil, a thick layer forms. Rapid drying cements this layer; poor emergence, reduced oxygen supply to roots, and water infiltration interference follow.



Breaks soil crusts and saves crops

Seeds struggling to push through this crust will continue to grow under the crust only until they run out of stored energy. The warmer the weather, the faster the seeds will emerge and the sooner the crust should be dealt with.

A pass with a rotary hoe through fields affected by crusting is an efficient way to break up the soil around the seed and re-energize emergence.

A small percentage of the seedlings will be lost, but rotary hoeing will have little long-term effect on plant stand or yield. The seedling loss is minimal compared to the negative impact of replanting due to failed emergence throughout the majority of the field.

Rain can have a different negative impact in sandy soils. As soils dry after a rain and wind picks up, sand can be blown through the field, destroying the emerging crop. A quick pass with the rotary hoe creates divots to catch the sand and protects young plants.

### **Use the Rotary Hoe for Weed Control**

In no-till operations, residue increases and so does time for weed germination. Populations of weeds in no-till shift: large-seeded, deep-rooted weeds decrease and small-seeded, shallow-rooted ones increase. These factors make no-till operations and rotary hoeing for weed control a good match.

Another situation appropriate for rotary hoeing is when the amount of rainfall is not sufficient to activate and incorporate certain herbicides. Rotary hoeing will incorporate some of the herbicide, activating it and controlling weeds before they emerge. This mechanical approach to weed management is a much less expensive solution than a second herbicide application.

Rotary hoeing for weed control should be done when weeds are in the “white stage”— before they become easily visible above ground. Normally this window occurs within 5 to 14 days after planting but timing depends on multiple factors such as when the last tillage pass occurred, seed properties, and weather. Determining the right time will require careful field scouting—dig into soil to gauge weed emergence progress and hoe accordingly.

For optimum effectiveness, enter the field to hoe during the hottest part of the day. Windy days are the best days to hoe—sun and wind speed the drying of uprooted weeds and ensure that they will not re-root. Avoid hoeing when the soil is damp since weeds are resilient and may be able to re-root in this weather.

### **The Right Rotary Hoe for the Job**

Newer toolbar style rotary hoes work well in min-till and no-till operations because they handle tougher residue situations. Most new rotary hoes have wheels spaced to encourage self-cleaning, and the staggering of each wheel assures maximum soil coverage. If you are purchasing a new rotary hoe, it’s wise to size the operational width to the same as your planter.



Aerate and dry wet soils

Purchasing a used rotary hoe with worn teeth will negatively impact the tool’s effectiveness because the spoon-bill at the end of each tooth is what engages the soil to break crusting.

### **Proper Rotary Hoe Operation Is Key**

The effectiveness of rotary hoeing depends largely upon the operator. When possible, drive in the same wheel tracks as your planter to reduce compaction.

In soybeans, extra care must be taken when hoeing. It’s best to hoe soybeans in the afternoon when the emerging seedlings are limber and more flexible to prevent snapping off of the plants. Check frequently while hoeing to ensure this is not happening.

Unlike other equipment, the rotary hoe works best when operated at the relatively high ground speed of 7 to 10 miles per hour. The speed of operation adds the benefit of quick response to seedlings needs—days are not lost from the plant’s growing cycle.

Although a glance across the field after hoeing at this speed is

completed may cause alarm, a return visit to the field in a week should reveal improved emergence, stronger stands, and fewer weeds.

### **The Rotary Hoe Revival**

The rotary hoe is a tool that will achieve results for today's producers even when conditions are not optimal. For crust-busting, weed control, sand fighting, residue management, and pre-planting preparation, the modern rotary hoe is the answer.

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